



Application No. 10/606,669

Amendment

Reply to Office Action of February 7, 2005

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): Optoelectronic angle measuring instrument (1) with a dimensional standard (10), a light source (20), a collimator lens (30) and a sensor receiver (50), wherein light emitted from the light source (20) is parallel-collimated by the collimator lens (30), modulated by the dimensional standard (10), which is non-rotatably connected to a shaft (41) of the instrument, and detected by the sensor receiver (50), wherein the light source (20), the collimator lens (30), the dimensional standard (10) and the sensor receiver (50) are arranged so that an axis of rotation (3) substantially coincides with an optical axis (2), characterized in that both at least an end piece of the shaft (41) as a mechanical component and the refractive collimator lens (30) as an optical component of the instrument (1) are formed as a single plastic part (100) which accommodates the light source (20) and additional electronic components.

Claim 2 (currently amended): Optoelectronic angle measuring instrument (1) according to claim 1, ~~characterized in that the following additional functional parts are molded on the single plastic part (100):~~ including a coil former (71) for a secondary coil (70), and a board holder (42) for a transmitter board (25) which mounts the light source (20) and additional electronic components, and a centering device (43) ~~on~~ molded to the single plastic part (100).

Claim 3 (currently amended): Optoelectronic angle measuring instrument (1) according to claim 1, ~~characterized in that~~ wherein the dimensional standard is a diffractive dimensional standard (10) that is sampled and ~~the dimensional standard is a diffractive dimensional standard (10) molded in to~~ the single plastic part (100).

Claim 4 (currently amended): Optoelectronic angle measuring instrument (1) according to claim 1, characterized in that the plastic part (100) is an injection molded part made from at least one plastic component.

Claim 5 (canceled)

Claim 6 (currently amended): Optoelectronic angle measuring instrument (~~5~~) according to claim 1, characterized in that a surface of the lens (~~30~~) is spherical in shape.

Claim 7 (currently amended): Optoelectronic angle measuring instrument (~~1~~) according to claim 1, characterized in that a surface of the lens (~~30~~) is configured as a stepped lens in order to reduce its axial installation space.

Claim 8 (currently amended): Optoelectronic angle measuring instrument (~~1~~) according to claim 1, characterized in that the plastic part (~~100~~) is substantially transparent to infrared light.

Claim 9 (currently amended): Optoelectronic angle measuring instrument (~~1~~) according to claim 6, characterized in that the light source (~~20~~) and a transmitter board (~~25~~) are encased by the plastic part (~~100~~).

Claim 10 (currently amended): Optoelectronic angle measuring instrument (~~1~~) according to claim 1, characterized in that the plastic part (~~100~~) has a molded-on centering device (~~43~~) connected to a ball bearing (~~46~~) or a shaft portion (~~40~~) whose angular position is to be measured.

Claim 11 (currently amended): Method for producing an optoelectronic angle measuring instrument (~~1~~) with a dimensional standard (~~10~~), a light source (~~20~~), a collimator lens (~~30~~) and a sensor receiver (~~50~~), wherein the light emitted by the light source (~~20~~) is parallel-collimated by the collimator lens (~~30~~), modulated by the dimensional standard (~~10~~) which is non-rotatably connected to a shaft (~~41~~) of the instrument, and detected by the sensor receiver (~~50~~), characterized in that both at least an end portion of the shaft (~~41~~) and the refractive collimator lens (~~30~~) are made from a single plastic part (~~100~~), and the light source (~~20~~), a receiver coil (~~70~~) and additional electronic components are encased by the single plastic part (~~100~~).

Claim 12 (currently amended): Method according to claim 11, characterized by positioning the light transmitter (30) arranged on a board (25) in the injection molding die, and thereafter injection molding the plastic part.

Claim 13 (currently amended): Method according to claim 11, characterized by giving the injection molding die the negative shape of a curved surface of the collimator lens (30).

Claim 14 (currently amended): Method according to claim 11, characterized by providing the lens (30) with a stepped lens surface ~~in order to reduce its axial installation space~~.

Claim 15 (new): Optoelectronic angle measuring instrument comprising a dimensional standard, a light source, a collimator lens and a sensor receiver arranged on an optical axis, the dimensional standard being non-rotatably connected to an end piece of a rotatable shaft which is rotatable about an axis of rotation, the axis of rotation substantially coinciding with the optical axis, at least the end piece of the shaft and the collimator lens being formed as a single plastic part.

Claim 16 (new): Optoelectronic angle measuring instrument according to claim 15 wherein the light source and additional electronic components are incorporated in the single plastic part.